

Association for Information Systems AIS Electronic Library (AISeL)

ECIS 2006 Proceedings

European Conference on Information Systems
(ECIS)

2006

A critical study of ISP filtering of child pornography

M. Eneman

eneman@informatics.gu.se

Follow this and additional works at: <http://aisel.aisnet.org/ecis2006>

Recommended Citation

Eneman, M., "A critical study of ISP filtering of child pornography" (2006). *ECIS 2006 Proceedings*. 209.
<http://aisel.aisnet.org/ecis2006/209>

This material is brought to you by the European Conference on Information Systems (ECIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ECIS 2006 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

A CRITICAL STUDY OF ISP FILTERING OF CHILD PORNOGRAPHY

Eneman, Marie, Göteborg University, Box 620, 405 30 Göteborg , Sweden,
eneman@informatics.gu.se

Abstract

Information and communication technologies (ICT) are today the most used technologies for child pornography. In an attempt to reduce access to child pornography, some Internet Service Providers (ISP), in the United Kingdom, Norway and Sweden have introduced filtering systems which block access to web sites containing child pornography. The aim of this paper is to critically analyse whether the ISP filtering techniques is an effective approach to the problem with child pornography and ICT. The paper will present initial empirical findings consisting of court records, criminal investigation records and interviews with convicted offenders. This material provides information about the type of ICT that has been used for child pornography. The paper has applied critical information systems research, since this perspective is well suited to critically examine the technology used. In light of the empirical material this paper argues that although the ISP initiative to block access to child pornography is a step in the right direction, filtering is not a truly effective approach to this problem. Some identified flaws with the filtering approach will be presented. The results of this study are of great importance to both the critical IS research and professional communities, since the findings enhance the understanding of ICT and its social effects.

Keywords: Child pornography, ICT, critical IS research, filtering, ISP

1 INTRODUCTION

Information and communication technologies (ICT) are crucial components in the changes taking place in our contemporary society (Walsham, 2004; Castells, 1996). ICT is today the most used medium for child pornography (Adam, 2005; McCulloch, 2004). The advent of ICT has allowed child pornography to evolve from a concealed and often expensive activity into something that can be accessed more easily, rapidly, anonymously and at low cost (Taylor & Quayle, 2003; Eneman, 2005). Gillespie (2005) points out that even though child pornography existed prior the advent of ICT, the increasing use of ICT has led to “an explosion” regarding the amount available.

There have been many different, both traditional legal and private regulatory, approaches trying to solve the problem of child pornography (Akdeniz, 2001; May, Chen and Wen, 2004). One such private regulatory approach has been the introduction of filtering systems by Internet Service Providers (ISP) (Hamilton, 2004). The largest ISP in the UK, British Telecom (BT) has since June 2004 been blocking web sites containing child pornography. BT’s software blocks access to sites which have been blacklisted by the Internet Watch Foundation. Following its introduction BT reported that its software blocked over 23 000 attempts to access child pornography per day (Batty, 2005). In the beginning of 2005 the largest Norwegian telecom, Telenor, introduced a similar system. Following the Norwegian introduction, a debate arose in Sweden on the need for filtering software to reduce child pornography. The Swedish Minister of Justice pointed out that unless the ISP take responsibility in this issue he is prepared to introduce legislation to coerce them. In April 2005 the largest Swedish ISP, TeliaSonera, introduced a similar blacklisting system. TeliaSonera’s list is compiled in consultation with the National Criminal Investigation Department. TeliaSonera estimates that this system has blocked between 6000-7000 attempts to access child pornography per day (Sjöberg, 2005).

When discussing Internet filtering one should be aware that this is a controversial topic which primarily is associated with oppressive regimes. Critical voices against filtering maintain that this technique risks trespassing into certain fundamental rights, such as freedom of expression and privacy (Deibert and Villeneuve, 2005). It is also important to be aware of the risk of overblocking when using Internet filtering. Overblocking occurs when the filtering system blocks more than is intended by those who have implemented it (Rosenberg, 2001). These issues will however not be discussed further in this paper.

The purpose of this paper is to question and analyse (Howcroft and Trauth, 2005) whether the ISP use of filtering techniques is an effective approach to the problem of child pornography and ICT. This paper argues that filtering is not a truly effective approach to this problem. The perceived efficiency of filtering rests upon certain assumptions about technology. These assumptions emerge from, amongst other things, the simplified public ICT discourse, which tends to understand ICT as a single homogenous technology (Kling et al, 2005). One of the dangers with this simplified discourse is that the diversity of ICT is not adequately understood. This paper presents a critical analysis of ICT use among convicted offenders, and presents initial empirical findings, which challenges the assumptions of the effectiveness of filtering technology as a means to reduce access to child pornography. The result of this work increases our understanding of which type of ICT offenders use for child pornography, how it is used and also their attitude towards the technology. This knowledge is invaluable to be able to achieve social change (Alvesson and Deetz, 2000; Cecez-Kecmanovic, 2005). These results are of great importance to both the critical information systems research (CISR) and professional communities, since the findings enhance the understanding of ICT and its social effects.

The structure of this paper is organised as follows: the next section briefly presents the field CISR. This study takes its foundation from, implements and aims to contribute to CISR. This is followed by a brief presentation of Internet filtering. Next the research methodology is presented, followed by a presentation of the empirical findings. These findings are then discussed in relation to the purpose of this paper and, in closing, the conclusions of this paper are presented.

2 CRITICAL INFORMATION SYSTEMS RESEARCH

Within IS research the discussion on the widespread dissemination of ICT in society has mainly focused upon the benefits involved in ICT usage (Howcroft and Trauth, 2005). This simplified approach tends to omit the fact that the technology is not one-sided and that the dissemination of any technology brings with it both pros and cons (Thompson, 1995). Wajcman (1991) argues that despite efforts to inscribe users and uses in technology design we cannot predict the future uses of the technology. This paper will present empirical findings, which shows how ICT is used for harmful purposes, such as child pornography. Taking the latter into consideration, this paper will apply critical IS research for this work. CISR can be seen as a reaction to the mainstream IS research which tends to assume that technological innovation is “inherently desirable” and beneficial to all (McGrath, 2005). In the field of IS, the call to engage in critical research has been explicitly voiced by a growing numbers of researchers (Howcroft and Trauth, 2005; Adam, 2005; Walsham, 2005; Lyytinen, 1999; Ngwenyama, 1991; Orlikowski and Baroudi, 1991). The adoption of CISR can also be understood as a rejection of the understanding of technology development within society as being based on solely economic terms (Walsham, 2005; Howcroft and Trauth, 2005).

CISR encompasses a wide range of different research subjects, objectives, methods and philosophical starting points. However, these disparate applications of CISR all share a common denominator in their critical perspective (Cecez-Kecmanovic, 2005). Critical IS researchers are not primarily concerned with the efficiency of technology, but with questioning and challenging established assumptions and definitions regarding the technology, its use and effects in society (Howcroft and Trauth, 2005). The purpose with this approach is to move beyond established assumptions which dominate the public discourses (Kling et al, 2005). Kling et al (2005) argue that the public discourses on technology are often both one-sided and simplified “disconnected discussions”. This disconnected discussion is well represented by the debate of child pornography and ICT presented by the media. It is often one-sided, inadequate and often lacking in empirical basis (Cohen, 2002; Jenkins, 1998). These types of public disconnected discourses create a hinder if the goal is to establish positive social change in relation to ICT use. One way in which such discourses act as hindrances is that they create oversimplified conceptual models (Kling et al, 2005) of the role of ICT in society. One approach to counteract these disconnected discussions is for the researcher to carry out systematic empirically based studies.

In order to go beyond vague generalisations it is important to be more specific and define what is meant with the term ICT (Monteiro and Hanseth, 1995). Orlikowski and Iacono (2001) argue that the focus should be on the IT artefact and Walsham (2005) argues that the area of use should be presented. Despite the common terminological misuse, ICT is not one homogenous technology. It consists of several different technologies, which have different characteristics, and there are also variations in how different technologies are interpreted and used (Walsham, 2004).

Engaging in CISR entails the study of the research object with the aid of concepts relevant to critical theory, for example domination, power and control, emancipation empowerment etc (Cecez-Kecmanovic, 2005; Adam, 2005; Avgerou and McGrath, 2005). The goal is to develop knowledge and to offer alternatives to the established dominant assumptions and definitions. The purpose of this developed knowledge is to enable change and through this to contribute to a process of emancipation (Alvesson and Deetz, 2000).

3 INTERNET FILTERING

Internet content filtering is a term that refers to the techniques by which control is imposed on access to information on the Internet (Deibert and Villeneuve 2005). According to Rosenberg (2001) the use of filtering software to control access to the Internet has become a growth industry. The use of filtering software can be seen as a response to the availability of unpleasant material (i.e. pornography, violence, hate etc) on the Internet (Rosenberg, 2001). For the most part filtering is dependent upon one of three techniques. However the different techniques can be used in combination to achieve the desired effect. The processes are known as blacklisting, whitelisting and content analysis (Hamilton, 2004). Blacklisting refers to the process whereby lists of unacceptable websites are collected. Once the filtering software is installed the software will first check to make sure any website requested does not occur on the list of websites collected on the blacklist. Whitelisting is also, as the name reveals, a process of allowing access to material which has been checked in advance. However instead of creating lists of unacceptable material, whitelisting entails the creation of acceptable material. Users are therefore only permitted access to that which has been approved in advance. The third form of filtering is content analysis. The concept behind this system is to avoid predefined lists (irrespective of whether they are black or white) and to focus on the actual content of what is viewed. Content analysis works by setting predefined characteristics of the material which is to be avoided and allowing software to scan the information for this content prior to delivering it to the user (Deibert and Villeneuve 2005).

The filtering technique used by British Telecom, Telenor and TeliaSonera is “exclusion filtering” through so called “blacklisting”. According to Hamilton (2004) blacklisting is the most efficient and common approach to filtering.

4 RESEARCH METHODOLOGY

One of the challenges with engaging in CISR is that the guidelines for how to conduct CISR are scarce and sketchy. Critical IS researchers have focused on defining what it means to be critical, but largely ignored to explicitly define how criticality can be achieved in IS research (McGrath, 2005). McGrath (2005) argues that CISR has not yet reached a position where theory and practice of critical research inform each other. CISR, as a field, would benefit if its researchers become more explicit in their approach, especially when carrying out empirical studies. This paper is part of a larger ongoing research project regarding child pornography and ICT, where empirical studies are conducted in line with the CISR agenda. One of the difficulties with researching the area of child pornography and ICT relates to methodology (Noaks and Wincup, 2004). This is due to the fact that many actions surrounding the phenomenon constitute criminal offences and are, at the same time, considered highly unacceptable in society. An important consideration for this study has been to ensure the anonymity for all the participants. This has been done by anonymizing all personal information, situations or other specific circumstances.

The data presented in this paper is based on the following empirical material: Swedish court records concerning child pornography during the period of 1993-2003, Swedish criminal investigation records and interviews with convicted offenders (Noaks and Wincup, 2004). The importance of using empirically based data in studying the social consequences of ICT has been pointed out by Kling (2001). Quantitative and qualitative methods have been combined in this study (Mingers, 2001).

The quantitative data consists of court records ($n = 209$) and criminal investigation records concerning child pornography during the period of 1993-2003. The chosen period is especially interesting for this study since it includes both the wide spread dissemination of ICT in society and the important change in the Swedish Constitution in 1999 which criminalised possession of child pornography. To be able to collect this material the project had to be approved by the university ethics committee. After receiving the case numbers from the National Council for Crime Prevention (NCCP), the material was collected

by contacting all three levels of the criminal court system. The criminal investigation records were requested at a later stage from the relevant courthouses to complement court records which contained inadequate technical information. This written material amounts to circa 3000 pages.

The qualitative approach consists of semi-structured interviews with seven men, convicted for child pornography where ICT has been used. The contact with the convicted offenders took place after recommendations with the prison psychologists. Semi-structured interviews were used to maintain a balance between prepared interview topics and free narration (Hollway and Jefferson, 2004). The questions were focused on their use of ICT and their attitude and experience toward ICT. The interviews lasted between two-three hours each, and took place in the visiting-rooms at the prisons. The interview responses were recorded in longhand, in detailed note form. Among the conducted interviews, none has been tape-recorded. This condition was articulated by the respondents, not the researcher's choice. Noaks and Wincup (2004) discusses the pros and cons of tape-recording interviews and state that the mood during the interviews can be more relaxed without the presence of the tape-recorder and that this can have positive effect on the interview.

Content analysis has been used as an analysis technique for both the quantitative and qualitative data to identify the categorisations (Orlikowski, 2002; Silverman, 2005). The analysis of all the data has been carried out in two stages (1) an inductive examination of all the material and (2) a categorisation of the different ICT used. After these categories were identified in the quantitative data these were coded into a computer based statistical program, for further analysis. The purpose with this quantitative approach was to measure the studied phenomenon to obtain a wider understanding of the technology used. The purpose with the qualitative approach was to obtain a deeper understanding of the individual offender's attitudes and experiences of using ICT. Despite the relatively low number of respondents the qualitative material has been an invaluable source of data for this study. This material has provided information about the individual user's experiences of, and attitudes towards, ICT. The combination of quantitative and qualitative approach in this study has increased the understanding of ICT used for child pornography. This is because the quantitative data helps to see what might not have been seen with the qualitative data and vice versa (Kaplan, 1988; Mingers, 2001; Silverman, 2005).

4.1 Reflections of the material

It is important to reflect upon the empirical sources which are the basis of the insights (Howcroft and Trauth, 2005). When studying child pornography and ICT important sources of material include court records, criminal investigation records and interviews with offenders convicted for child pornography. It is important to be critically aware of the consequences of the choices of using this material (Alvesson and Deetz, 2000). Court records and criminal investigation records are unable to provide a complete picture. This material is produced in a specific context (Richardson, 2005) and for a specific purpose. The consequences of this is that the role of technology is not the focus of the material which means that the researcher must attempt to understand what is not obvious in the material (Alvesson and Deetz, 2000). Firstly, the material spans a ten year period and is therefore historical rather than contemporary. Secondly, child pornography is a criminal offence, the court records represent successful criminal convictions for this offence. This argument can also be applied to the respondents who have all been convicted of child pornography.

ICT usage that did not arrive at a conviction, where it was not taken to court by the prosecutor, were not presented to the prosecutor by the police or has not been discovered cannot, for obvious reasons, be included in these statistics. This means that this study cannot speak knowledgeably about those users who have not been convicted. This raises an interesting question – could it be that those who are not apprehended or convicted use other forms of ICT? This is an important issue which will be addressed in more detail in future studies.

Despite these limitations in the empirical data the material provides a rich source of information about the use of ICT in the child pornography context.

5 EMPIRICAL FINDINGS

This section presents the empirical findings of which type of ICT that has been used. The five identified categorisations of ICT are: World Wide Web (WWW), Internet Relay Chat (IRC), Peer-to-Peer (P2P), Electronic mail (e-mail) and File Transfer Protocol (FTP). The table below shows to what extent each technology has been used. The offender may have used one or more ICT. The result presented in the table below is based upon the court records and criminal investigation records.

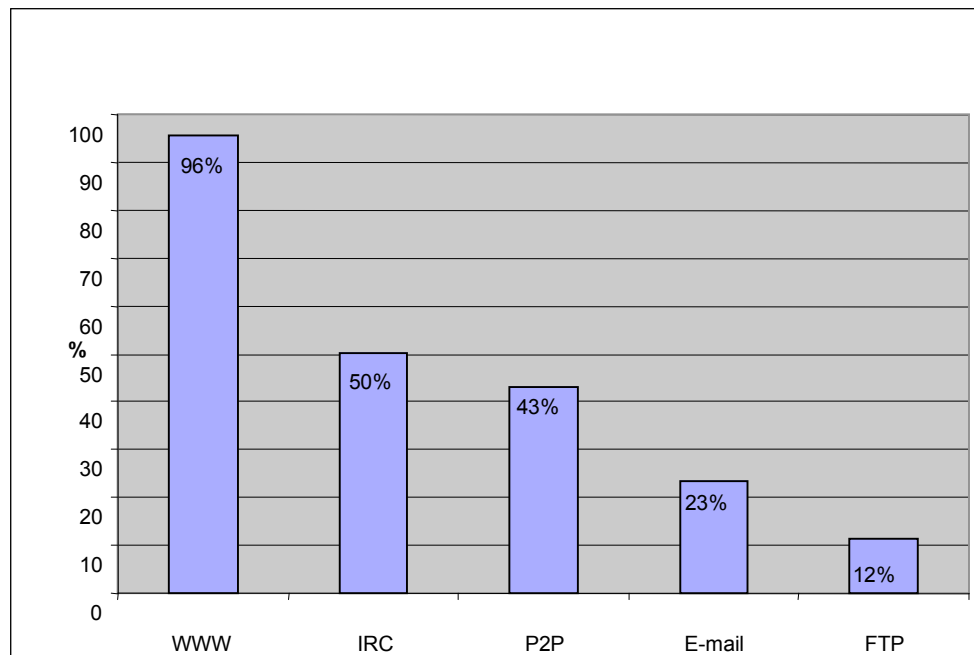


Table 1. *ICT used for child pornography.*

5.1 World Wide Web (WWW)

The table shows that a significant majority of the offenders, 96%, have used WWW for child pornography. The results from the interviews show that all those interviewed state that it is easy to find child pornography by using WWW, however they also add that they preferred to use other technologies than WWW. The respondents talked about the ease of using WWW to find child pornography, both free and subject to a charge. As the following quotation shows it is clear that ICT facilitates the access of child pornography.

One of the respondents says, while discussing the use of WWW for accessing child pornography:

"I think that anyone can find child porn, all you have to do is surf around porn sites and link onwards. Sooner or later one finds child porn especially if one begins with ordinary Russian porn sites. A lot of the child porn today is from Russia, this is because of their legislation." (Interview A 2005 – author's translation).

Despite that all the respondents state that it is easy to find child pornography via WWW, it is not in favour among the respondents. All respondents expressed that their opinion was that WWW is primarily used by inexperienced users to access child pornography, and that this technology is the first used before starting to use other more anonymous technologies.

One respondent expressed his attitude and experience of WWW as following:

"I used the web when I was new and didn't know of anything else. I surfed a bit in the beginning but then I was told by a friend who I had begun to chat with so I went over to IRC." (Interview F 2005 – author's translation).

This quotation supports the idea that WWW is more used among inexperienced user. It also reflects the fact that paedophiles tip-off each other online regarding technological issues.

The findings show that WWW has been used both to access material and for communication in web based chat forums. These forums have been used for paedophiles to communicate with like-minded and also for the grooming activity. Grooming refers to the activity when an adult initiates and establish contacts with a child online with the intention of preparing the child for later physical meeting (Krone, 2005) or with the intention to communicate with the child online to attain sexual gratification with no intention of arranging physical meeting (Taylor and Quayle, 2003).

When talking about the use of web based forums to get in contact with children, the respondents told that they find it easy to get in contact with children in these forums and to direct the communication in a sexually way. Different types of web based chat forums have been used, both forums for children and forums explicitly intended for adults.

A respondent stated this:

"My own children would never be allowed to use chats like X..." (Interview D 2005 – author's translation). (X refers to a Swedish web based chat forum.)

One factor which may affect the occurrence of grooming is that many children are using ICT in ways in which their parents are unaware of. Parents often have very limited knowledge of what their children actually do or who they communicate with online (Livingstone, 2003).

5.2 Internet Relay Chat (IRC)

The table shows that a significant number 50%, of the offenders have used IRC for child pornography. All the respondents, aside from one, regularly used IRC for child pornography. They told that they used this technology to a much larger degree than WWW. What seem to have attracted the offender with IRC is that this ICT is easy to use and that it offers both the possibility for communication, and for access and distribution of child pornography. The respondents told that they felt relatively anonymous when using IRC. They used pseudonyms when they communicated with other.

Social contact and interaction with other paedophiles is considered to be valuable and important among paedophiles. This can be explained by the fact that their sexual interest in children is highly unaccepted in society and is almost universally illegal (Adam, 2005.) Through their interaction with other paedophiles they can get their sexual interest for children legitimised and obtain social status within these environments (Eneman, 2005). The findings show that IRC also have been used for the grooming activity.

One respondent talked about IRC like this:

"To be able to chat with others about this was important to me. I chatted online daily with others, one got to know others who were online a great deal and one exchanged images and films with them...one tipped off each other of locations for more material...a great deal of the chat is dedicated to technology...for example when someone is new and does not know so much...the chats have certain open areas and other which are not open for everyone" (Interview G 2005 – author's translation).

Despite the fact that IRC is primarily known as a communication/chat technology the findings shows that IRC to a wide extent also is used for access and distribution of child pornography. Both those interviewed and the quantitative data show that a large number of IRC users have used the chat program mIRC with an additional script which enables the creation of an F-serve. In other words the user shares a section of his/her hard disk which can be used both to make material available to others and for others to leave material on the hard disk. In this way a barter relationship is created between

IRC users. According to the respondents it is common with conditions to be applied in the barter, for example that the visiting user first has to upload something to be able to download something.

The use of F-serve for access and distribution is described by a respondent:

“I had configured Panzar to automatically add a text to the channel that there were over 10 000 available child pornography images. To be able to collect something one was forced to send something. When I was connected to the IRC with Panzer I could see which people were inside my computer... and what they were doing. Which images they fetched and left. All the pictures that were sent were stored in a special catalogue. I looked through all submitted pictures and sorted them in the right order. One saves all pictures even those one does not like since it is good to have a large range...” (Interview B 2005 – author’s translation).

5.3 Peer-to-Peer Networks (P2P)

The table shows that a significant number 43% have used peer-to-peer networks (P2P) for child pornography. The respondents stated that this technology was used to a much larger degree than WWW. This technology offers possibilities to access and distribute large volumes of files.

The experienced easiness of using P2P is illustrated by a respondent:

“One can easily find free child pornography if one uses file-sharing software, I used Kazaa quite a lot. It was easy to use, one wrote in certain keywords and the material was downloaded. One can even click on certain alternatives of what one would like to download or one can click on “all” which means everything is downloaded.” (Interview C 2005 – author’s translation).

5.4 Electronic Mail (e-mail)

The table shows that 23% of the offenders have used e-mail for child pornography. Among those interviewed the use of e-mail for child pornography was only used in a small scale and occasionally. This technology does not seem to have been used on a regularly basis for this matter. They stated that they did not find this technology secure enough to use. The findings show that e-mail has been used to distribute files with child pornography and links where child pornography can be found.

One respondent described his use of e-mail as:

“...sometimes I used mail to send images, but this was on a smaller scale...” (Interview A 2005 – author’s translation).

E-mail has certain limitations, which affects its use. There are often restrictions of how large files that can be sent by e-mail and the traceability is higher, which reduce the anonymity.

5.5 File Transfer Protocol (FTP)

The table shows that 12% have used FTP for child pornography. The results from the interviews however shows that FTP is used to a rather large extent and that the respondents attitude against this technology is that this is a useful technology to use because it enables to access and distribute large volumes of material. Among the most experienced and technically skilled respondents this is more widely used than by the respondent not so experienced or technically skilled. FTP is considered by the respondent to be a secure technology to use.

One respondent talked about how he began to use FTP for child pornography:

“...I used FTP sometimes, mostly because a friend wanted to use it. He helped me to get started, he installed the program on my computer at home and showed me how to use it. We used it to exchange files with each other when we found new material...yes, there was actually another friend who we

exchanged with...the reason we started with this was that the friend said that this was better than what we used earlier” (Interview C 2005 – author’s translation).

In the quotation above the respondent states that the reason for starting to use FTP was that this was considered to be a “better” technology by his friend. The term “better” refers to more secure and anonymous. The term “friend” refers to another paedophile within a closed online community.

Another respondent expressed the use of FTP in the following way:

“...within my group we mostly used FTP to send material to each other, you can send big files with it...” (Interview G 2005 – author’s translation).

This quotation illustrates the attractiveness of FTP, that it facilitates sending large volume of material.

6 DISCUSSION

The purpose of this paper has been to present empirical data concerning the use of ICT for child pornography in order to critically analyse the effectiveness of ISP employing of filtering technology as a method of reducing access to child pornography.

6.1 Technology Used

Within this study five different categories of ICT (WWW, IRC, P2P, e-mail, FTP) have been identified as those used for child pornography. The results of the quantitative data show that a significant majority of the offenders 96% have used WWW for child pornography. A significant number of offenders have used IRC (50%) and P2P (43%). While the least used technologies in this study are e-mail (23%) and FTP (12%).

However there is a significant difference when comparing the above with the results from the qualitative data. In this material the respondents were unanimous in their opinion of WWW. The respondents all maintain that WWW is a technology mainly used by beginners. The quantitative data show a high level of use of IRC and P2P technology. Among the respondents these were the most widely used technologies. The quantitative data show that the least used technologies were e-mail and FTP. While the qualitative data shows that FTP was commonly used by the more technologically advanced. The qualitative data showed that e-mail was the least used ICT.

It is important to take into consideration the inherent limitations of the material, presented in the method section, when discussing the effectiveness of filtering to reduce access to child pornography. The presented results represent offenders who have been convicted. Therefore there may be groups of paedophiles using ICT that this data does not represent. Since this material represents convicted offenders it is also a reflection on both the abilities and limitations of police investigations into ICT related crime and the characteristics of the technology (Walsham, 2004). Taking this into consideration WWW is comparatively easier to use than FTP and therefore may attract more users. It is also comparatively easier for the police to discover child pornography spread via WWW than via FTP. This means that the data must be interpreted carefully so as not to draw erroneous conclusions (Alvesson and Deetz, 2000).

6.2 Arguments for filtering

The high numbers of users who have used WWW for child pornography, reflected in the quantitative data, can be interpreted uncritically to support the rationale behind the ISP introduction and use of filtering systems since these systems block access to web sites containing child pornography. One argument for the introduction of filtering systems is that such systems make access to child pornography much more difficult. This will have the possible effect, according to this argument, of reducing the incentive to produce and disseminate child pornography (Taylor and Quayle, 2003).

Another rationale for filtering is that it has the effect of reducing the risk of chance encounters of child pornography. The qualitative material in this study indicates that WWW mostly is used by the users who do not have a long experience of using ICT for child pornography. Therefore this supports the rationale for filtering, since inexperienced users tend to begin with WWW.

6.3 Flaws with filtering

Let us now shift the lens from an uncritical interpretation to a critical interpretation of the results (Howcroft and Trauth, 2005; Cecez-Kecmanovic, 2005). The critical lens helps to question and move beyond established assumptions about how ICT is used for child pornography (Alvesson and Deetz, 2000; Kling et al, 2005). This paper has identified serious limitations with the use of filtering in attempting to limit child pornography.

The identified limitations are:

- To be truly effective a filtering system must include all point of access to the technology (Hamilton, 2004; Rosenberg, 2001). In this case, this means that all ISP must implement similar systems. If all ISP do not implement systems users can switch to an unregulated ISP. This requires national and international coordination (Deibert and Villeneuve 2005).
- As this paper shows, WWW is only one ICT of many (Monteiro and Hanseth, 1995) used for child pornography. There are other ICT, described above, widely used to access child pornography. Filtering technology in use today is unable to block this traffic.
- The process of filtering requires that the offending material is known to the system. This means that users can access new material that has not yet been blacklisted (Hamilton, 2004).
- Blocking access to offending material does not change the fact that the material is still there. It is only the access to the site that is denied by certain ISP.

Despite the fact that the introduction of filtering systems is an important step in the right direction it is important not to believe that this resolves the fundamental problem of child pornography and ICT.

None of the respondents believe that such systems are able to solve this problem, they do not believe that systems such as these do any difference at all. They state that filtering systems easily can be circumvented by either changing ISP or using different technologies.

On the topic of ISP filtering one of the respondents stated:

“This type of filtering is completely pointless. All you have to do is change ISP or use a different technology...or package the material as something else, such as MP3 music files or something” (Interview G 2005 – author’s translation).

One aspect that this study has not taken into consideration is the type of content transferred. Technologies such as FTP are more suitable for transferring large files, or large amounts of files, than WWW. Therefore the low use of technologies such as FTP should not be interpreted as having a low social impact.

7 CONCLUSION

Today there is a serious lack of adequate understanding of the role of ICT for child pornography. This understanding is decisive to be able to bring about change. The question posed by this paper was to analyse whether the ISP use of filtering techniques can be seen as an effective approach to the problem of child pornography and ICT. By applying a critical perspective this study has been able to move beyond the simplified public discourse of ICT and identify certain flaws with the filtering technique. The motivation for identifying these flaws is the awareness and understanding to change and improve the current situation, which is the ultimate goal of critical research. As this study has shown the

implementation of filtering systems will not resolve the fundamental problems underlying child pornography and ICT.

The ISP initiatives can be seen as an interesting example of private actors in our society which attempt to do something about the complex problem of child pornography and ICT. The most important thing to remember however is that this is not enough, much more has to be done to be able to effectively solve this growing problem.

References

- Adam, A. (2005). *Gender Ethics and Information Technology*. Palgrave Macmillan.
- Akdeniz, Y. (2001). Controlling illegal and harmful content on the Internet. In *Crime and the Internet* (Wall, D. editor). Routledge.
- Alvesson, M. and Deetz, S. (2000). *Doing Critical Management Research*. Sage.
- Avgerou, C. and McGrath, K. (2005). Rationalities and emotions in IS innovation. In *Handbook of Critical Information Systems Research* (Howcroft, D. and Trauth, E. eds.). Edward Elgar.
- Batty, D. (2005). Internet child porn offences rise fourfold. *Guardian Unlimited*. March 4, 2005. Online. Available <http://www.guardian.co.uk/child/story/0,,1430470,00.html> (April 7, 2006).
- Castells, M. (1996). *The information age: Economy, society, and culture, Volume 1: The Rise of the Network Society*. Oxford: Blackwell.
- Cecez-Kecmanovic, D. (2005). Basic assumptions of the critical research perspectives in information systems. In *Handbook of Critical Information Systems Research* (Howcroft, D. and Trauth, E. eds.). Edward Elgar.
- Cohen, S. (2002). *Folk Devils and Moral Panics*. Routledge.
- Deibert, R.J. and Villeneuve, N. (2005). *Firewalls and Power: An Overview of Global State Censorship of the Internet*. In *Human Rights in the Digital Age* (Klang, M. and Murray, A. eds.). Cavendish Publishing.
- Eneman, M. (2005). *The New Face of Child Pornography*. In *Human Rights in the Digital Age* (Klang, M. and Murray, A. eds.). Cavendish Publishing.
- Gillespie, A.A. (2005). *Indecent Images of Children: The Ever-Changing Law*. *Child Abuse Review*. 14. Published online in Wiley InterScience (www.interscience.wiley.com)
- Hamilton, S. (2004). *To what extent can libraries ensure free, equal and unhampered access to Internet-accessible information resources from a global perspective? Doctoral Dissertation*. Royal School of Library and Information Science, Copenhagen, Denmark.
- Hollway, W. and Jefferson, T. (2004). *Doing Qualitative Research Differently: Free Association, Narrative and the Interview Method*. SAGE Publications.
- Howcroft, D. and Trauth, E. M. (2005). *Handbook of Critical Information Systems Research*. Edward Elgar.
- Howcroft, D. and Trauth, E.M. (2004). The Choice of Critical Information Systems Research. In *IFIP WG 8.2. Information Systems Research: Relevant Theory and Informed Practice*. (eds) Kaplan, B. et. al. Kluwer Academic Publishers.
- Jenkins, P. (1998). *Moral Panic: Changing Concepts of the Child Molester in Modern America*. Yale University Press.
- Kaplan, B. (1988). Combining Qualitative and Quantitative Methods in Information Systems Research: A Case Study. In *MIS Quarterly*. December.
- Kling, R. (2001). *Social Informatics*. In the *Encyclopaedia of LIS*. Kluwer Publishing.
- Kling, R., Rosenbaum, H. and Sawyer, S. (2005). *Understanding and Communicating Social Informatics: A Framework for Studying and Teaching the Human Contexts of Information and Communication Technologies*. Information Today, Inc.
- Krone, T. (2005). Combating Online Child Pornography in Australia. In *Viewing child pornography on the Internet: Understanding the offence, managing the offender, helping the victims* (Quayle, E. and Taylor, M. eds). Russell House Publishing.

- Livingstone, S. (2003). Children's use of the internet: reflections on the emerging research agenda. *New Media & Society* 5(2) 147-166.
- Lyytinen, K. (1999). Information Systems and Critical Theory. In *Critical Management Studies* (Alvesson, M. and Willmot, H. eds). Sage Publications.
- May, B., Chen, J-C. and Wen, K-W. (2004). The Differences of Regulatory Models and Internet Regulation in the European Union and the United States. In *Information & Communication Technology Law*. 13 (3).
- McCulloch, H. (2005). Interpol and Crimes against Children. In *Viewing child pornography on the Internet: Understanding the offence, managing the offender, helping the victims* (Quayle, E. and Taylor, M. eds). Russell House Publishing.
- McGrath, K. (2005). Doing critical research in information systems: a case of theory and practice not informing each other. In *Information Systems Journal*. 15, 85-101.
- Mingers, J. (2001). Combining IS Research Methods: Towards a Pluralist Methodology. In *Information Systems Research*. 12 (3), 240-259.
- Monteiro, E. and Hanseth, O. (1995). Social shaping of information infrastructure: on being specific about the technology, In *Information technology and changes in organisational work* (Orlikowski, W., Walsham, G., Jones, M.R. and DeGross, J.I. eds) Chapman & Hall.
- Noaks, L. and Wincup, E. (2004). *Criminological Research: Understanding Qualitative Methods*. Sage Publications.
- Ngwenyama, O. (1991). The critical social theory approach to information systems: problems and challenges. In *Information Systems Research: Contemporary Approaches and Emergent Traditions*, (Niessen, H., Klein, H. and Hirschheim, R. eds). North-Holland Publishing.
- Orlikowski, W. (2002) CASE Tools as Organizational Change: Investigating Incremental and Radical Changes in Systems Development. In *Qualitative Research in Information Systems* (Myers, M. and Avison, D. eds). Sage Publications.
- Orlikowski, W. and Iacono, C.S. (2001). Research Commentary: Desperately Seeking the "IT" in IT Research – A Call to Theorizing the IT Artifact. In *Information Systems Research*. 12 (2) 121-134.
- Orlikowski, W. and Baroudi, J. (1991). Studying IT in organizations: research approaches and assumptions. In *Information Systems Research*. 2 (1), 1-28.
- Richardson, H. (2005). Consuming passions in the 'global knowledge economy'. In *Handbook of Critical Information Systems Research* (Howcroft, D. and Trauth, E. eds.). Edward Elgar.
- Rosenberg, R.S. (2001). Controlling access to the Internet: The role of filtering. In *Ethics and Information Technology*. 3 35-54.
- Silverman, D. (2005). *Doing Qualitative Research*. SAGE Publications.
- Sjöberg, J. (2005) Interview with TeliaSonera's press agent. November 7, 2005.
- Taylor, M. and Quayle, E. (2003). *Child Pornography - An Internet Crime*. Brunner-Routledge.
- Thompson, J.B. (1995). *The Media and Modernity – A Social Theory of the Media*. Polity Press.
- Wajcman, J. (1991). *Feminism confronts technology*. Polity Press.
- Walsham, G. (2004). *Making a World of Difference: IT in a Global Context*. John Wiley & Sons Ltd.
- Walsham, G. (2005). Learning about being critical. In *Information Systems Journal*. 15. 111-117.